VOL. 1, NO. 2 • SEPTEMBER/OCTOBER 1984

MicroTimes™

California's User Oriented Computer Magazine

WILL HARVEY and His Music Construction Set

Introducing IBM's PC AT

THE COMPUTER: A Rocker's Best Friend?

Also: Hardware, Software, and Arcade Reviews

Will Harvey. Photo: Richard McCaffrey

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The personal computer is the most important breakthrough in technology since the discovery of fire. Many cave dwellers probably thought that the personal fire was just a demanding, treacherous toy. But fire gave people a whole new degree of control over their environment. Today a large part of our environment is made up of information, and to survive and succeed we all need a whole new degree of control over it.

A large percentage of the personal computers in the world live in California. Many of the machines and much of their software are born here. It is a vast, turbulent and ever-changing market.

With over 250 personal computer magazines competing for the attention of YOU, the reader, it is a fair question to ask what makes MICROTIMES so special. MICROTIMES can open a window into the California computer community for you. In the months to come, look for news, software and hardware reviews, interesting interviews and stories about the Californians who are creating the microcomputer age.

We are always looking for people who can write clearly and intelligently about personal computer hardware, software, peripherals and gossip.

Also, we offer free listings for user groups, bulletin boards and computer associations. Most of all, we'd like to know what's happening with you, publicize your group's activities, and cover products and issues of interest to you. Drop us a line...

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CORRECTION

"What's in a name?
That which we call a rose by any other name would smell as sweet..."
William Shakespeare
Romeo and Juliet

Ms. Jina Bacarr's name was spelled incorrectly in our last issue. Microtimes regrets this error. The proofreaders have promised to make amends as soon as they are released from the dungeon.

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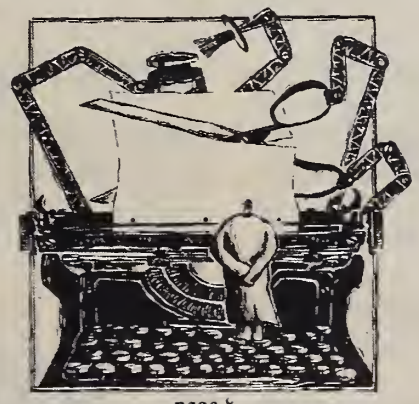
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California's User Oriented Computer Magazine

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EDIT MODE

By Don Hamilton

Peking's Number One Department Store

Peking scene

MICROTIMES went into China ahead of the president. I sat next to an IBM executive on the flight over. He wasn't in the mood to tell all of what IBM was doing in China. I assumed there was not now, and not likely to be soon, a mass market for the PC or even the PCjr. The luggage carousel was loaded with bags labeled "White House Staff." What I wanted to see was the Chinese personal computers. I asked if one could buy such an item in China. The answer was, "Of course!", and I was directed down a busy street near Red Square and told to find the Number One Department Store.

Inside the stark, stone, four story building known as the "Number One Department Store" was what one finds everywhere in China — a crowd. The store was spacious but somewhat sparse. Since I don't speak Chinese, I wandered through the store until I found the electronics and camera section located on the second floor. Much to my surprise I saw a Radio Shack Model 100 for sale. The salesman spoke English and was delighted to explain to me that the computer which I had mistaken for a Radio Shack was made in Shanghai and called something I cannot pronounce or write. I asked for a demonstration and was treated to the Microsoft Copyright introduction when the system was turned on. As a test I asked if the programming was done in another country. The salesman assured me that the computer was made in China and that all the programming was written there. As you might imagine, I was somewhat surprised at this, but I almost fell over when I saw the price of 8400 Yuan (our equivalent $4200!) However, I felt more at home when the salesman was unable to demonstrate any programs.

Pan Am

One of Pan Am's clipper ships, the Ocean Telegraph, has a personal computer on board in the galley. I was surprised, after being told I could not operate my own during flight, and asked the purpose of having a computer on the plane. The steward, who was still training on the system, wasn't much help, but a representative from Transcom, the company who provided the computer, answered my questions. He had been following the machine all over the world. The purpose of the computer was established as a communication aid between crews and homebase. It will help Pan Am in various ways. Pan Am will now be able to track their crew locations more easily. Significantly, they will also be able to inventory the subcontractors worldwide that service Pan Am. At present Pan Am simply pays the invoice and has very little idea what is loaded on any given flight. A big surprise for the vendors who may have been collecting just a little more than they should have been.

"Studio 64" by Entech

For aspiring music composers, Entech Corp. has a deal for you. In order to promote "Studio 64," their new program for the Commodore 64, they are running a contest. The object is to write your best song on the software. The first prize winner will receive $1000 cash and free studio time to record his or her song. Second place winner receives $500 and free studio

MICROTIMES RATES THE TOP TEN BUSINESS PROGRAMS

In picking the ten best personal computer business software products, MT evaluated overall usefulness for home or small business management. We include some word processors, some spreadsheets, some tax accounting programs and some graph construction programs. Ease of learning, clarity of documentation, convenience of use, and general utility were some of the criteria we considered.

Remember that not every product is available for every brand of machine, and versions for different machines may not be exactly comparable. Let us know your nominations.

LOTUS 1,2,3
MULTIPLAN
WORD PERFECT 3.0
PFS GRAPH
SUPER CALC 3
TAX ADVANTAGE
THE HOME ACCOUNTANT
MULTIMATE
dBASE III
SUPER SCRIPTSIT

COMING SOON: MicroTimes rates the ten best art and music programs, the ten best elementary education programs, and the ten best adult learning programs. Send in your nominations!

time, and third place winner receives free studio time. All entries must be received by December 1, 1984. Entries will be judged and the winners announced on December 15, 1984. The award ceremony, in which the winning songs will be played, will be at the Winter Consumer Electronics Show in Las Vegas, Nevada. Songs must be no longer than five minutes in length. Entries should be sent to 10733 Chiquita Street, Studio City, CA 91604.

Customs computer crackdown

Imitation computers coming into the country these days are being grabbed at the gate. A good deal in Hong Kong these days can end up costing you quite a bit of money. You will not only have to give up your contraband, but you may be subject to a fine. In the end, you will still have to buy your computer here at home.

Shopping at home is not all that bad a deal! I have been to Hong Kong recently and found the prices to be only somewhat competitive and the selection comparatively quite poor. So my advice is — Buy American!

C-64 user's exchange

By Ed Shurtleff

Based in Tustin, CA, the C-64 User's Exchange and Report is one of the largest and most active Commodore-64 user groups in Southern California. Over 300 members are divided into 8 separate sections, called Workshops, which meet regularly in as many local communities for discussions and study. Meetings are usually held monthly; however, one workshop meets as often as three times per month (in months having five Tuesdays).

Workshops are devoted to topics of interest to the members, with specific subjects tailored to the knowledge and capabilities of the group. Various language sessions and series held recently have ranged from basic Basic to advanced Machine Language, with side trips to visit FORTH and PASCAL. General intelligence and gossip of interest to the Commodore community is a feature of every Workshop session, with discussions of problems and solutions, hardware evaluations and software comparisons that will assist members. Local manufacturers and stores present demonstrations of their products. Hardware construction projects are a frequent feature of workshop meetings.

The group publishes a monthly newsletter for the members. Advertisements for services and supplies, hardware and software are included.

Obtain further information by telephoning (714) 544-2130. An answering machine will take your message in off-hours.

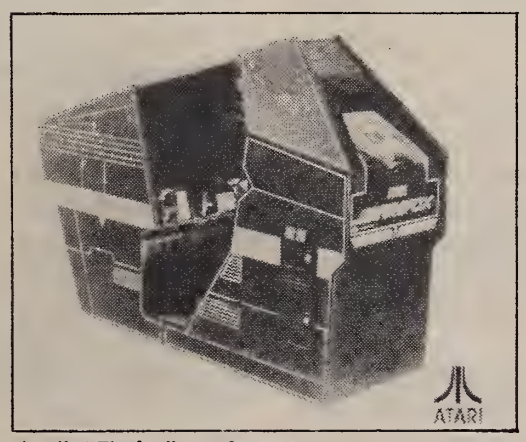
Whole Earth Software Review

Stewart Brand, Publisher, says, "This magazine is a book-in progress." In late 1984, Doubleday will publish the *Whole Earth Software Catalog*, a book whose "subject is everything having to do with personal computers."

The magazine is good, in depth probing of software and hardware. The ad on the back cover is *National Lampoon* style; they claim to have discovered the origin of the computer bug. In 1945 the U.S. Navy's Mark II computer was down because a large moth was stuck in its enormous set of relays. After the moth was removed and taped into the logbook, whenever the computer "went down," the technicians would report that they were "debugging" it. The term still holds today.

Atari's new "Firefox"

Atari previewed its new arcade laser disc game "Firefox" at this year's National Association of Broadcasters (NAB) show in Las Vegas. The game, based on the Clint Eastwood adventure film of the same name, puts the player in the role of U.S. Major Gant, whose mission is to steal the technologically superior Firefox warplane from the Soviet Union. Among the difficulties the player will encounter are radar tracking systems, Russian MIG fighters and other Firefox prototypes.



Atari's "Firefox" arcade game

In order to assure dynamic action sequences for the game, the design team viewed hours of movie footage, some never before seen by moviegoers. The footage was edited and integrated with advanced computer graphics onto a laser disc to realistically depict the hazards the Firefox must evade on its way out of the USSR.

Since sophisticated microprocessors and advanced laser disc technology have made it possible to digitize dialogue from the movie, the player will be warned, encouraged, and entertained along the way by 28 of Eastwood's phrases.

"Firefox" features the same specially developed flying controls featured in "Star Wars," also by Atari. Fire buttons on the controller have two functions: the trigger switch fires bursts of cannon-type shells from the Firefox nose, and thumb buttons operate the launching of one of the four missiles for large target destruction.

"The Woz" on concerts

When asked if he was to do any more US Concerts, Steve's answer was a definite "Yes." He enjoys putting on the concerts and plans to do more — but not this year. Maybe Steve will celebrate his child's birthday with a surprise rock concert — US III one of these days.

Traveling with your computer

A trip abroad with your new portable computer could be a costly learning experience if you leave the country without proper documentation. Those planning to travel with their computer should check with the U.S. Department of Commerce to determine if their equipment and/or destination require a validated export license. Although this is not usually required except when entering communist bloc nations, you should carry a retail sales receipt to prevent fines, confiscation of your computer or civil and criminal penalties. Be sure your retail sales receipt includes information on the owner and the value of the equipment, where it was manufactured and where it was originally sold.

CARD SHARK

THE SILICON CHIP WITH THE GOLDEN TONGUE

Sweet Microsystems' plug-in speech for the Mockingboard™

Manufacturer: Sweet Microsystems, 50 Freeway Drive, Cranston, RI 02920
System requirements: Apple II, II+ or IIe, 48K RAM, 1 disk drive, Monitor, 2 external 8 ohm speakers.
Suggested retail price: $129.95

If you have an Apple on your desk and ears on your head you need the Mockingboard. One of the worst things about personal computers is the little, tinny, feeble speakers they have. When all a computer was expected to do was make robotic beeping noises this wasn't too bad, but for any kind of music, sound effects or speech you really need something better. Sweet Microsystems to the rescue.

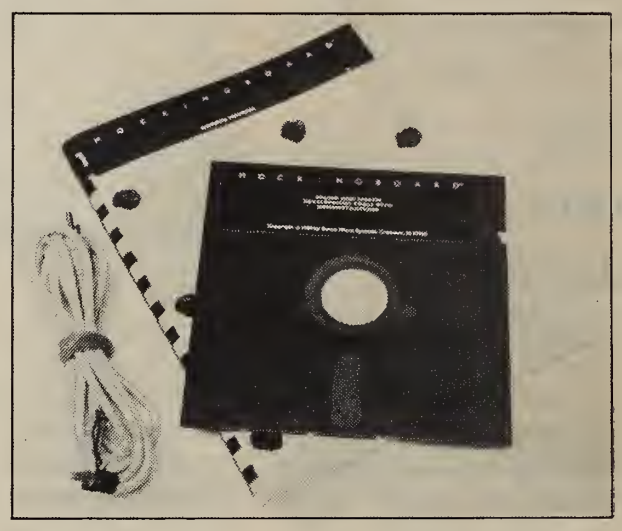
The Apple is not a great machine for music. To quote from the semi-Biblical *APPLE II USER'S GUIDE* (McGraw-Hill, 1981): "It can be an annoyance because you cannot control what the speaker does with BASIC statements. You have to define every sound the Apple II speaker makes in thorough detail. In essence, all you can do in programming the speaker is to make it emit a single click. The trick to making sounds with this speaker is to vary the frequency of these clicks, thus creating sounds of differing pitch."

The Mockingboard lives in Slot 4 inside your Apple. The writer is usually paralyzed with terror whenever he opens the case of his computer, but the installation instructions that came with the card were simple, reassuring and relatively foolproof (at least for this fool). Two speaker cables with standard RCA phono jacks attach to the card and come snaking out the back of the machine when installed. I ran down to the local stereo store and bought the cheapest Made-in-USA speakers I could find. OOPS, the speaker jacks also have male connectors. Problem solved by $1.39 adaptors from Radio Shack. The 1/2 watt amplifiers on the card will not break your wine goblets or shake the earth, but they put out a surprisingly good sound. In fact, if you use your system late at night, and anyone sleeps in the adjoining room, you will need to use the little thumb wheels on the card to adjust the volume down. Another option, of course, is a set of good earphones. The true audio fanatic can connect the phono jacks to the auxiliary input of a stereo amplifier.

Lots of folks will buy the Mockingboard simply to use Will Harvey's delightful *MUSIC CONSTRUCTION SET* published by Electronic Arts. Up to six different notes can be sounded at one time by the Mockingboard. Baroque music and rock come across especially well. Romantic music, with its richer dynamics, sounds a little thin, however.

An increasing number of games also utilize the range of sound effects the card can generate, for example *TACTICAL ARMOR COMMAND* from Avalon Hill. The more ambitious user can use the utilities provided on the demonstration disk to create, store and manipulate sound effects for his or her own programs. The user can control a lot of variables in shaping a particular sound. Examples on the demo disk include gunshot, railroad train, helicopter, door slam, gong, and assorted weird cosmic noises.

The Mockingboard documentation makes an heroic effort to explain the intricate technicalities of acoustics. Someday I will try to puzzle it out, unless one of you gentle readers out there can explain it all for me.... If you intend to create and use your own sound effects, expect to spend a lot of time with the manual and some effort in trial and error.



Sweet Microsystems' Mockingboard© for the Apple

The original Mockingboard has two empty 24-pin sockets on the card. Each one can accommodate a speech synthesizer chip (so there is the potential for two voices, one on each stereo channel). The plug-in speech module comes in a handsome box with a demonstration/utility disk and a well written 85-page "Owner's Manual" (only one page of Errata).

There is a Text-to-Speech utility that will take a shot at speaking anything you type in on the keyboard. This alone is worth the price, providing hours of amusement for your friends (at least if they are anything like my friends...). Don't expect this gadget to speak with the trained perfection of a silicon Sir Laurence Olivier or Vanessa Redgrave. It sounds like a machine with a lisp. It will not turn your Apple into HAL.

To fully exploit the potential of the speech synthesizer, one needs a knowledge of assembly language (which I haven't got) and a bit of phonetics (which I still dimly remember from that sophomore Linguistics course). The amplitude (loudness), inflection, filter frequency and speech rate can each be varied over a wide range. Within a single word, special markers can be used to alter the stress. The text reader is sophisticated enough to recognize silent letters and other peculiarities of English pronunciation.

The conventions used by the speech synthesizer software to load, store and manipulate files are tricky, and may be frustrating for the beginner. This is not exactly uncommon in the world of personal computing.

One hopes that everyone writing software for the Apple family will start to use this magnificent tool to make their programs talk. At least one game, the rather gruesome *CRYPT OF MEDEA* from Sir-Tech already uses this capability of the Mockingboard.

The possible applications in language teaching, software for the visually handicapped, telephone communications and other areas are limited only by the imagination of the programmer and what the market will support.

— Mike Markowitz

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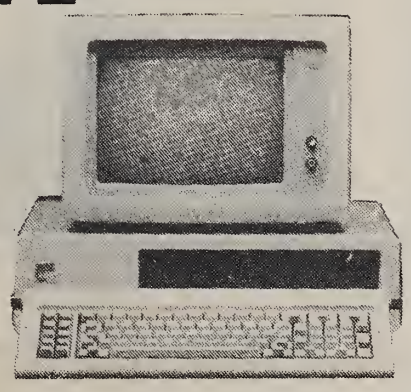

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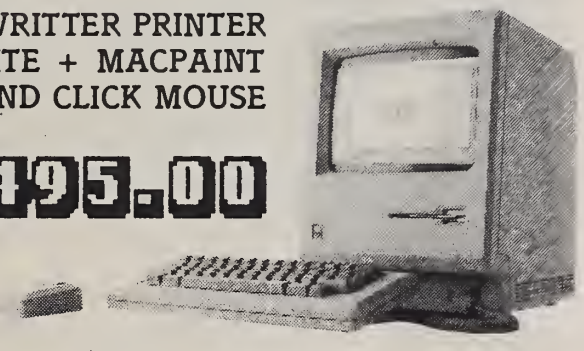

APPLE

ALS CPM/CARD 64K	$275
Amder Color 1	275
Drives for Apple	145
Micromodem IIe	249
Hayes MACH III	39
Fans	45

IBM

A.S.T. Six Pack w/64K	$279.50
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SOFTWARE REVIEWS

BUSINESS

Word Processing Primer Part 1

By Kim Nelson

All you frustrated writers who have had to rely on scissors, scotch tape, dried-up white-out and endless rewrites, only to end up with marginally satisfactory copy: your ship has come in!

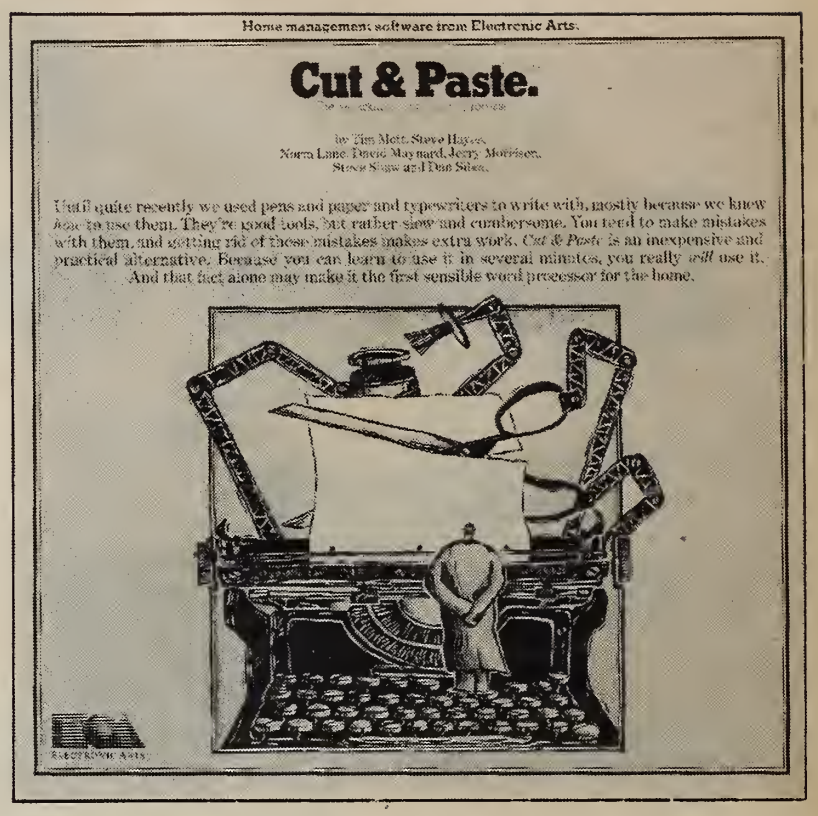
Of all computer business programs, word processors are the most used. The purpose of this series is to familiarize the reader with the attributes of some of the most popular word processors. I consider three things when looking at a WP: user friendliness, write and edit functions, and print modes. I define user friendliness as the ease with which a program may be learned and used. The write and edit functions show us the diversity and power of each program. Finally, "print modes" refers to how well and with what options the data may be transmitted to the hard copy.

I plan to review twelve of the most popular programs. If there is one you would like included, please write me and I will attempt to review it at a later date.

Letter Perfect by L.J.K. Enterprises is a no-fancy-frills program which has been a mainstay to home users of the Atari and Apple systems for a couple of years. The program is available on disk or cartridge for the Atari or disk alone for the Apple. The manual is about one hundred pages long; however, it is not necessary to read the entire thing before using it. Most of it can be used as a reference guide and referred back to at will. I had the program up and running after just an hour; however, a first-time WP user should expect a little more difficulty. There is also a handy reference card which identifies the commonly used control functions. The default format allows you to print without having to mess with margins. As with most WP's, the writing and edit controls are simple keystrokes. In editing, the program is normally in a character change mode, but may be toggled into modes for character, line or block insertions. A function may be exited by hitting the escape key which will immediately call up a menu listing all modes. The program is set up to be used with all Atari/Centronics and Epson compatible printers. It took me a while to figure out how to get "correspondence quality" printing with my Gemini 10X since there is no printer control included for it.

Multimate by Softword Systems is a professional word processor. It is made with the IBM in mind and seems to have everything a word processor should have. There are a few exceptions, though all but the professional will have a hard time detecting them. Documentation is very good. It's probably a bit too complicated for the novice, but never fear, *Multimate* has a very useful three-level help menu. The first level lists the six major functional areas. You pick the area — e.g. printing functions — and a new menu appears with the macro functions such as bold print. If you select "bold print," you will be treated to a four-line description of how to use the bold function.

I was able to use the program out of the box without reading any more of the rules than the instruction for the help menu. After using the help menu for a few trial runs, you became very proficient painlessly.


Home management software from Electronic Arts.
Cut & Paste.
by Tim Mott, Steve Hayes,
Norm Lane, Dave Maynard, Jerry Morrison,
Steve Snow and Dan Silva.
Until quite recently we used pens and paper and typewriters to write with, mostly because we knew how to use them. They're good tools, but rather slow and cumbersome. You tend to make mistakes with them, and getting rid of these mistakes makes extra work. *Cut & Paste* is an inexpensive and practical alternative. Because you can learn to use it in several minutes, you really *will* use it. And that fact alone may make it the first sensible word processor for the home.

Cut & Paste by Electronic Arts truly shows human engineering. The complete program is menu driven so an absolute neophyte can have it up and running in minutes. *Cut & Paste* doesn't even require knowledge of the rudiments of disk drive operation to store and retrieve documents. All editing is done in a "modeless" operation; in other words, you just scroll the menu at the bottom of the page until you find the command for what you want to do, and then do it. The simplicity of this tool is truly a thing of beauty. The WP is compatible with almost any parallel printer. There are no fancy print modes, but you can set up three different page formats at once and choose among them. As the brochure says, it's not an "industrial strength" word processor, but the ease of use and the $40.00 price tag make it one of the great ones for home use on your Atari, Apple, or Commodore computer.

Look for part two of this article in our next issue.

MICRO FILER

Published by MicroBits Peripheral Products
For Atari

I think I must have tried every software "filing" package on the market, only to find out that just about all of them have severe limitations, especially when dealing with files containing both letters and numbers. *Micro Filer* solved nearly all of my previous problems and expanded the use of my Atari far beyond what I could do in the past. It uses a cartridge designed for the left slot of the Atari 800 (single slot for the 400) and can be used with a disk drive or cassette for data storage. With a 16K system and a simple file format, storage is over 300 records, and nearly 900 with 48K. With a customer list and complex customer data format, I was able to cram in nearly 360 records compared to only 180 with other software filing systems.

Micro Filer is more than just a whole lot of room to store records;

it allows searching in any field, be it alpha character or numeric. It also allows you to add or find the average of numeric fields or change data within any field; besides, it will show how much memory (converted to number of records) remains at any time. An added feature of the search mode is the ability to search for specific records: files can be retrieved in the order in which they were typed in or the listing can be viewed in alphabetical order. Searching can be done within a specific range and the use of "wild cards" can limit the output. *Micro Filer* can also do multiple field searching and still maintain alpha-numeric order if desired. As with any good filing system, *Micro Filer* has the ability to print anything from screen to printer in any format, from full page to mailing labels.

I have used *Micro Filer* extensively and find it the most comprehensive and memory intensive filing system available for Atari. The documentation is quite simple, yet detailed enough to facilitate almost any filing job. For a complete filing system it is reasonably priced at $50.00.

— Doug Pencille

GAMES

ONE ON ONE

Designed by Eric Hammond, Larry Bird, Julius Erving
Published by Electronic Arts
For Commodore 64

It was a rare opportunity. There I was at the local Parks and Recreation basketball court playing One on One with, of all people, Larry Bird of the Boston Celtics. Getting around him and sinking a basket was a tough job. He made a try at taking the ball, I did a quick 180 putting my back to him. I feinted left, right, left, and rolled out around him driving toward the basket. Larry is quick but I was a little quicker. About ten feet from the basket I jumped and slam-dunked the ball — 2 points!

That was when the backboard suddenly began to crack. In seconds it looked worse than a wino's bloodshot eyes after a long weekend. Then it fragmented and fell in pieces onto the court. The ball had hit the backboard so hard it broke. We took a breather while a maintenance man came out and swept up the mess.

Am I some lucky guy that was fortunate enough to be in the right place at the right time? No, the game took place in my living room on a TV monitor with the help of an Electronic Arts game disk entitled *One on One.*

Upon opening the jacket, which features an unsmiling Larry Bird and Doctor J, the player is transported into the world of sweaty locker rooms, TV cameras, and men with a driving desire to win. The booklet is well documented and liberally sprinkled with action shots of Larry and Doctor J. Excerpts from interviews with the two stars give hints for offensive and defensive strategy. Short biographies are included at the back of the booklet.

As good as the graphics, packaging and documentation are, they cannot compare with the game design. The player is given the choice of playing the computer or another player. If the computer is the opponent, the player can choose to play against either Larry Bird or Doctor J. There are four levels of difficulty: Park and Rec. (the easiest), Varsity, College, and Pro. You can choose to play against the clock or to a set score, which you predetermine at the beginning of the game. The player can even choose "winner's outs" or "loser's outs." Other factors designed into the game include Larry and Doctor J's pet shots, their shooting percentages from various areas of the court and their speed and reaction times. Fatigue is also a factor that must be considered. In the real world, basketball players have "Hot Streaks." The same is true in *One on One*, but, just like in real life, there is no indicator on the screen to tell you if you happen to be running on one. You just have to develop a "feel" for it. If you make a particularly spectacular play, and if the computer agrees, then an instant replay will be presented on the screen. Also, you can call up a menu to change the level of play or type of game being played at any time.

The referee is well done also. The graphics are good as he appears from off-screen to call various fouls such as hacking, traveling, and charging. How critical the referee is with his calls depends on the level of play chosen.

If you like the excitement of basketball you will like this game. Well, have to go now. Doctor J wants to play a little One on One. Obviously Larry told him about me!

— Gordon Bruce

EXCALIBUR

Designed by Chris Crawford, Larry Summers, and Valerie Atkinson
Published by APX
For Atari

This game, loosely based on the situation in England 500 years after the Roman occupation, has everything: diplomacy, high finance, war, treachery, personal interrelations, even love triangles. At the start, England is divided into sixteen warring petty kingdoms. Your job, as King Arthur, is to unite them under your rule. To accomplish this, you have at your disposal great armies, economic pressure and a little magic, courtesy of Merlin.

Each king is given a certain alignment based on how he feels

SOFTWARE REVIEWS

GAMES

about the other rulers. Some, like King Hengist, are Arthur's arch-enemies; others, such as King Hoel, Guenevere's father, are friendly. However, even the friendly rulers will attempt to plunder your kingdom if you allow your defenses to become too weak. Usually, the opposing kings are defeated economically — i.e. you plunder their holdings until they become too poor to support their armies. When they become defenseless, they are forced to abdicate and become another king's vassal. This king in turn must defend the vassal's territory as well as his own or the vassal may seek a new liege. Each time a king defeats another in battle or turns back an invader, he receives prestige points which greatly influence his status among other leaders and the vassals' choice of liege.

This is one of the most sophisticated games yet for the Atari. There is evidence throughout the game of the authors' attention to detail, such as the gothic lettering which lends *Excalibur* a medieval flavor.

— Kim Nelson

EDUCATIONAL

WORD FLYER

Designed by Child Ware
Published by Electronic Arts
For Atari, Apple

How do you combine education with just plain fun? Electronic Arts has managed the merger in *Word Flyer*. The game can be played by beginning scholars as well as adults. Some eye-hand coordination is necessary for manipulation of the joystick, but the ability to read is not required. The game teaches basic phonics clues, letter recognition, pattern recognition, spelling and alphabetizing.

Word Flyer is a word (or letter) matching game for one or two players. The object of the game is to make the word or letter fly across the screen and land on top of the one it matches. On either side of the screen the player finds a Watch Bird perched atop a word tower, which has four slots for letters or words, depending on skill level. These are known as the "flyers." The center of the screen houses the "rest nest," the bird's nest which is designed to allow the player to change controls or just take a short break. Positioning the "flyer" in the nest also stops the timer.

Each time you make a word or letter ("flyer") match, some color will be added to your score bar located at the bottom of the screen. When the two ends of color meet, you will be advanced to the next flight level. The alphabet bar, located above the score bar, allows the players a choice of letters which, when selected, will appear on the bird's chest. All the words will then begin with this letter.

On more advanced levels of play, "Careless Cloud" enters to obstruct your vision. However, if the player can manage to land his flyer in this cloudbank, extra points are awarded.

The ease of play makes this an excellent choice for younger children; however, the lack of sophistication may not hold the attention of an older audience.

— Pat Hamilton

GAME OF THE STATES

Designed by ESC
Published by Milton Bradley
For Apple

How much U.S. geography do you really remember? You may be mildly chagrined when you note your score after playing *Game of the States* on Level II. This game is really five games in one and has two levels of play: Level I for beginners and children and the more challenging Level II, for more experienced gamers. The game is designed for one or two players. In "Name the State" (game I) the shape of the state appears graphically on the screen surrounded by abbreviations of its neighboring states, and players must correctly identify it. The graphic outlines of the states are well done throughout all levels to facilitate ease of recognition. "Name the Capital Cities" (game II) graphically forms the state (with its name displayed) and the neighboring states (with abbreviations). A flashing marker denotes the capital city by location within the state and the player must correctly name it.

"Abbreviation Game" (game III) should probably be played first with children unfamiliar with state abbreviations as they are used throughout all the games. As the state name appears, the player must name its abbreviation or vice versa.

"Name the Neighbors Game" (game IV) shapes and names a random state. The player must identify all its bordering states as the flashing question mark appears. The map will display up to seven neighbors.

"Major Cities Game" (game V) displays the shape of a state as well as abbreviations of its neighbors. The names of four cities appear at the bottom of the screen, and one choice is NOT a major city in that state. The player must select that city which is NOT located in the graphical display of the state.

Level I uses mostly multiple choice situations for scoring. Level II utilizes "typed-in" answers and punishes the player for misspelled entries. All games and both levels can be timed to increase the challenge of the game.

— Pat Hamilton

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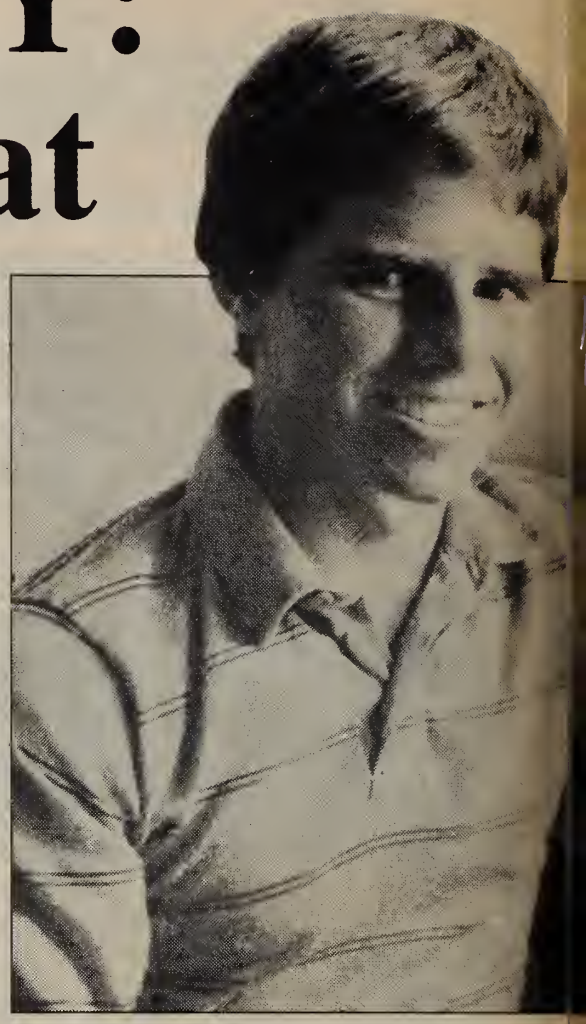


By Mary Eisenhart

FOSTER CITY — When Will Harvey starts school at Stanford this fall, he will, no doubt, blend in well with other football players, ex-student body presidents, and denizens of the honor roll. He doesn't know yet what he'll be majoring in, maybe history or physics. What he does know is that he won't be majoring in computer science.

This decision wouldn't seem so strange, except that the 18-year-old Harvey is also the proprietor of his own software company and the creator of *Music Construction Set,* a program marketed by Electronic Arts. Beloved by critics and the buying public alike, *MCS* has occupied a comfortable niche in the *Billboard* Educational Software Top 10 for the last six months, practically since its release. For about the price of a Fisher-Price phonograph, *MCS* allows anyone from the beginner to the professional musician to compose, store and play back original works; it will print out compositions or transcribe and play sheet music.

Corporate giant Will Harvey surveys his latest shipment. Photo: Richard McCaffrey

Harvey's programming odyssey began in characteristically serendipitous style when he was 12. When a friend got a computer, young Will decided it looked like fun and, being an enterprising soul, convinced his parents to put up half the money for a Commodore PET if he made up the rest from his paper route earnings.

The elder Harveys soon recouped their investment. Mrs. Harvey, a college instructor, was struggling with unwieldy grading systems. Her helpful son devised a grading program which not only eliminated her difficulties, it also proved marketable.

That was the beginning. The Commodore was replaced by the first of a succession of Apples. (Harvey now uses a IIe, partly because he's used to it and partly because he still considers Apples the most exciting machines on the market.)

Harvey was soon taken with the notion of inventing a computer game. Undeterred by a complete lack of knowledge of graphics or machine language, he culled enough information from friends, books, and articles to design a game — a variation on the kill-it-before-it-multiplies theme, pitting the player against a host of bugs. The bugs blow colorful, larvae-filled bubbles, which, left to their own devices, bounce gracefully across the screen and hatch more bugs, which blow more bubbles. . . . The game has several skill levels, and at the more advanced stages things get out of hand very quickly.

Harvey christened the game *Lancaster,* a decision he has since lived to regret because people constantly ask him why. He now explains a little sheepishly, "The real truth is that there's no reason. I was designing a logo and I didn't know what to call it. The letters LANC fit together really nicely, so I had to think what on earth began with LANC that I could call this game." He was studying the Wars of the Roses in history class, being in tenth grade at the time, so "Lancaster" it was.

Lancaster was never a blockbuster, though Harvey did succeed in selling it to a company which regrettably went out of business shortly thereafter. (He has since bought back the rights and is now working on the game with a view toward re-releasing it.) However, one of its design features had far-reaching effects. He recalls ingenuously, "I thought it would be pretty to have the bubbles floating around, and bugs blowing bubbles, and music in the background. The problem was, I didn't know anything about music, let alone how to get the computer to play it. I can't even play the piano. So I had to write a program that would allow me to convert some sheet music that I'd bought at a store to the pitches and durations that a computer could put a sound to. I ended up writing a really simple transcription program that allowed me to maneuver around with a joystick, pick up notes and set them on a staff. And then the computer would convert it to notes and play it."

The rudimentary transcription program not only provided *Lancaster* with a nice baroque soundtrack, it turned out to be a good learning device. Harvey, who had no previous compositional training, found himself exploring new musical territory, trying out new sounds and combinations while closeted with his computer. As he says, "I didn't have my little brother by the piano laughing at me, so I learned more about music."

About this time he met some publishers' representatives from Electronic Arts. While they were apathetic on the subject of bubble bugs, they were very interested in the music program. After reaching a mutually beneficial arrangement of royalties and distribution rights, Harvey and

Harvey displays his creation. Photo: Richard McCaffrey

EA spent about eight months refining the program, giving it additional features to make it attractive to the professional musician and serious hobbyist as well as to the beginner.

The finished product was well-received by critics, who showered it with terms like "delightful" and "wonderful." It allows the entry of sheet music into the computer by placing notes on the staff — a task best accomplished by joystick, mouse or Koala Pad™, though some entries can be made by keyboard strokes. On request, it will play the music back (commands are given by choosing an icon for that function — the icon for playback is a piano). It will save music on disk, recall it, or transcribe it on a printer. It is also equipped with a full complement of musical notation symbols and allows the would-be composer to create melodies, transpose keys, change time signatures, and otherwise experiment with esoteric variations in order to achieve a pleasing result. It incorporates a cut-and-paste feature, so that sections of a song can be rearranged. It has a built-in error detector — if the fledgling artist should put too many beats in a measure or commit some other musical gaffe, the computer points it out. *MCS* is, in fact, a sterling representative of EA's "simple, hot and deep" philosophy: it's immediately accessible, fun to use, and stays interesting as the user acquires more expertise.

While *MCS* does have some limitations, many of them are due to hardware rather than software. The speakers on Apple computers, for instance, were never designed for high fidelity, being able to produce only one none-too-exciting note at a time. With considerable ingenuity, Harvey and his friend Jim Nitchals succeeded in programming an Apple version of *MCS* that gave the speaker the ability to produce up to four notes (or "voices") simultaneously. Unfortunately, this created such a load on the microprocessor that the music wouldn't scroll across the screen as it played, as the programmers had intended.

Enter the Mockingboard™, an add-on card (discussed elsewhere in this issue) which, when inserted in the Apple, allows it to play chords of six notes and still scroll music. While the Apple version of *MCS* will work with or without the Mockingboard, the difference is so striking that the boardless option is pretty unexciting by comparison.

Both the Atari and Commodore computers have superior sound without additional hardware. Harvey is especially enthusiastic about the Commodore 64, which, despite its exceedingly modest price tag, has the most sophisticated sound available in a home computer, enabling it to produce recognizable versions of instruments from snare drum to banjo. In fact, the C-64 contains a synthesizer chip, and, says Harvey, "you can play accordion with a piano if you want, and you can really hear the difference."

The main intrinsic limitation of *MCS,* Harvey readily admits, is the length of the song it will accept — only 1400 notes at a time, about 1-2 pages of sheet music. True, once the 1400 notes are transferred to disk, 1400 more can be entered, but Harvey is the first to admit that this is a cumbersome process, especially since the stored pieces cannot be played in series.

Harvey is currently at work on revisions of *MCS,* mostly to make the program more attractive to the serious musician. High on the list is his plan to make *MCS* MIDI-compatible (MIDI, an acronym for Musical Instrument Digital Interface, is an "electronic handshake" which allows access to synthesizers via computer. Many manufacturers now feature MIDI-compatible hardware and software). On a more speculative level, he says that sound technology is moving at such a pace that in a few years there may be a version of *MCS* with synthesized voice accompaniment. After that, it may become possible to create exotic voice combinations, or just "load in the person you want to sing," he laughs, conjuring up visions of Michael Jackson singing in French or Willie Nelson singing "Beat It."

But for all his fondness for computers, the eclectic Harvey has no intention of making them an academic pursuit, "pretty much because I'm doing right now what I want to be doing with computers," he says. "I think it's fun to create a program, kind of a work of art, as a writer creates a book, the way a musician creates a piece of music. Computer software is like the medium for a writer: a pen or pencil, or the language in which that person writes. I'm really not interested in learning too much more about the medium of the computer or how it works — probably the same feelings as the writer who doesn't want to learn to write in four more languages. The object for me is to create a work of art, and the process of creating or being able to create on 90 different machines is not that important to me."

So why the interest in history and physics as possible college majors? Mostly, he says, because he thinks they'd be fun. But also, "I'd like to be able to carry on an intriguing intellectual conversation in just about any situation. With a knowledge of history and physics and maybe some foreign language, I would be able to do that."

Not that he's giving up computers. He admits that he's working on a couple of projects — a fantasy game and a non-game program — but he doesn't want to talk about them at this stage. "Another funny computer word," he laughs, "is 'vaporwear.' It means people talking about things that never come into existence. So I'm not going to talk about things until I really have them." □

COMPUTERS and HEALTH

By Pam Pescara

If, after sitting in front of your video display terminal, you suffered a headache, had difficulty seeing clearly, or noticed changes in color perception, you'd probably suspect that the visual stress was related to the VDT. But surprise! If you experience increased irritability, nervousness, or excessive physical fatigue, you should also suspect your VDT.

"More than 50 percent of all VDT operators experience eyestrain and vision-related symptoms, such as headaches and blurred vision, after using a VDT," says Dr. Thomas Kopan, a behavioral optometrist specializing in vision-related learning and achieving problems. "The numbers become really staggering if we consider that an estimated 22 million people will be using a computer daily at home or at work by the year 1985."

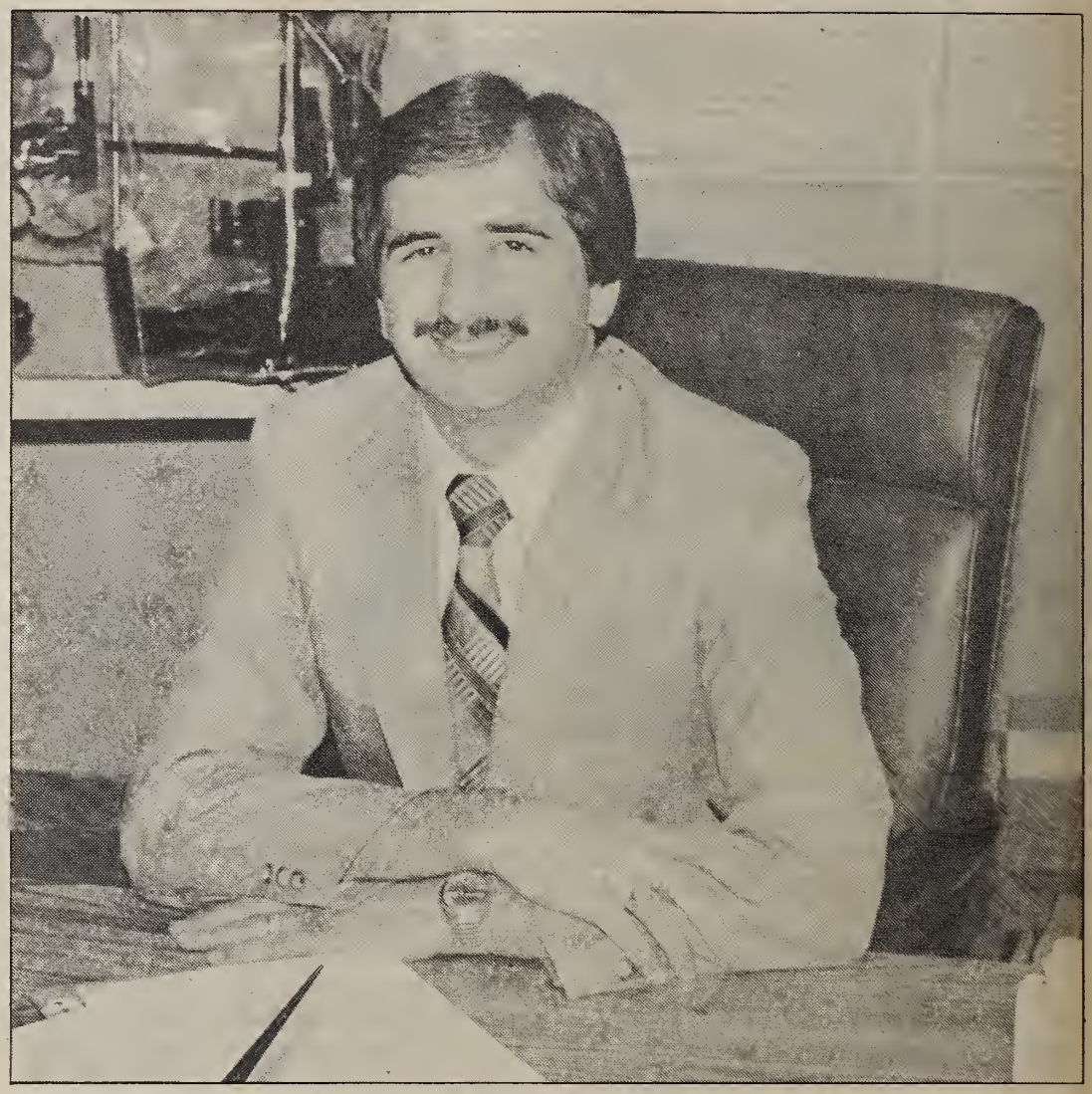
But is the problem really related to the video display terminal? Dr. Kopan attributes visual stress-related symptoms to problems with computer positioning and work station design. More and more computer designers and manufacturers are relying on the knowledge of behavioral optometrists, like Dr. Kopan, for help in designing hardware that minimizes visual stress.

"Human eyes were originally designed for hunting or detecting danger off in the distance. Reading is a relatively new adaptation," he notes, adding that it was not until the Industrial Revolution that nearsightedness became as rampant as it is today.

"The human eye cannot focus on images displayed on a VDT with the same accuracy as those on a printed page. Instead, the point focused will fall somewhere between the screen and the user's resting point focus. This resting point focus drifts behind the VDT screen, leaving the user farsighted."

In addition to the symptoms described, eye irritation, slow refocusing, frequently losing one's place when looking from copy to screen, an increase in errors, or pains in arms, wrists, or back means it's time to readjust your work station. Treatment may include the prescription of special stress relieving lenses. "These are not a sign of a defect," says Dr. Koplan, "but rather 'tools' for the job, much like a hard hat or safety goggles."

He suggests that users take a 15 minute break every two hours. Heavy workloads require breaks as frequently spaced as every ten minutes. □



Dr. Thomas Kopan, a behavioral optometrist, practices in Dana Point, CA

WELL-DESIGNED TERMINAL WORKSTATION

1. The keyboard should be detachable from the screen and set so that the screen and keyboard are the same distance from the eyes. A recent study indicates that the copy should be at about 40 cm. and the screen about 50 cm. from the eyes.

2. The wrist and arms should be parallel to the floor when using the keyboard.

3. The VDT screen should be about 20 degrees below eye level.

4. The chair should be easily adjustable without tools, so that the thighs are parallel to the floor and the feet flat on the floor.

5. Chairs should have proper back support.

6. Knees should clear the underside of the worktable.

7. The brightness and contrast on the screen should be adjustable by the operator for his/her maximum level of comfort. The VDT should also have reverse polarity capability so that light letters on a dark background can be switched to dark letters on a light background to give the user additional degrees of freedom for comfort.

8. Glare and reflections on the screens should be eliminated by moving or adjusting the screen. Filters on the VDT screen or baffles for overhead light may be needed.

9. A shaded lamp should be available for copy.

10. Illumination should be such that screen characters are 10 times brighter than the screen and the background illumination 3 times brighter than the screen.

11. Workstations should face an open area but never out a window or towards bright light sources.

12. VDT screens attract dust and should be cleaned regularly.

13. VDTs should be frequently serviced to prevent fuzzy or decaying images, flicker, or distortion.

For more information on VDTs and vision or to find a behavioral optometrist in your area, contact the Optometric Extension Program Foundation, Inc., 2912 South Daimler Street, Santa Ana, CA 92705 or call (714) 641-3883. The behavioral optometrists who are members are dedicated to preventing or correcting vision problems and enhancing visual performance.

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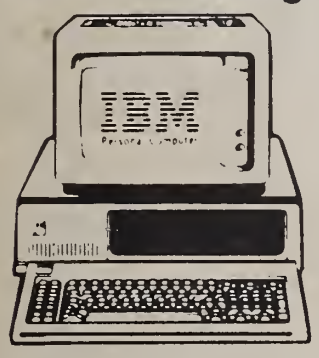

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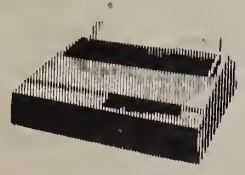

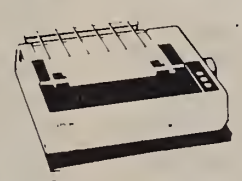

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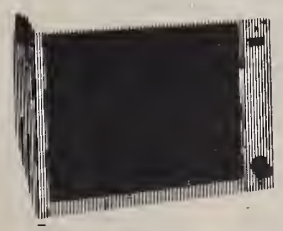

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ROAD WARRIOR

By Wolf Schneider

The Tubes' Fee Waybill unobtrusively enters the room and settles into a plush leather couch at the LA office of Fitzgerald Hartley Company, his management firm. Scheduled to embark on tour the next morning, the innocuously placid, bluejean-clad rock veteran observes the commotion around him as Chris Littleton, tour manager for Toto and part-manager of The Tubes, proudly displays an in-depth, up-to-the-minute, computer-generated printout of tour costs, profits, and bookings.

The "cost" section breaks down sound, lighting, transportation, insurance, passes, wardrobe, hotel, and salary expenses. The "profits" pages show scheduled venues, cities, guarantees, estimated grosses, and production support funds. The itinerary, which was previously given to the travel agent, indicates promoters, hotels, press contacts, showtimes, and departure times.

Littleton is ecstatic: "I can sort through this, find anything, move anything around, it's very easy to update. With my computer I can do all of this projecting in two hours instead of about three weeks. Now I don't have to carry around reams of paper and file folders. It's all sitting here on a few disks."

And how does Waybill feel about this new tool? "It helps me. I think it's really great . . . but I need glasses to read it," he chuckles. "Seriously, I like it. The other guys in the band, though, just throw the itinerary away. They don't care where they're going next," he shrugs.

Keeping Up With the Times

Along with the band, the tour manager, and the road crew, the last year has seen a new face joining many rockers on the road: the computer. Ask Bruce Springsteen, The Who, Supertramp, The Police, Jackson Browne, Van Halen, Stevie Nicks, Journey or Toto — they've all been traveling with increased ease and efficiency due to the itinerary printouts, expense projections, and electronic settlements (what happens at the end of the night when the band and the hall divvy up the profits) their tour managers and accountants are now spitting out from printers in hotel rooms coast to coast.

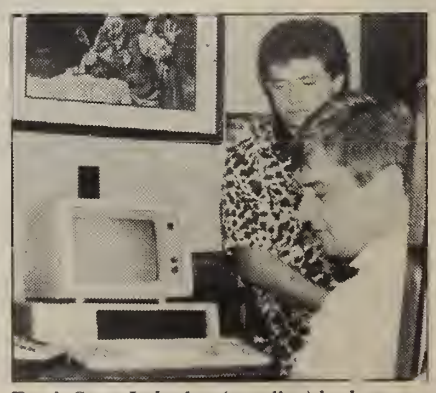
Is it worth dragging those AppleIIs, Kaypros, IBM PCs, Compaqs and Osbornes around? Setting up the printers, modems, and disc drives? Learning all those software commands? "Yes" is the overwhelming response from those who've given it a try.

Dallas-based tour manager and accountant Jay Hagerman (Supertramp, The Who, Paul McCartney, Concerts West) speaks for his colleagues, as well as himself, when he enthuses, "I don't know how anyone who ever uses a computer once ever lives without one after that."

So what exactly does the latest tour member contribute? Computer systems are being used for tour planning, expense projections, itineraries, airline scheduling, settlements, monitoring cash flow, stage managing, communication with the management office, riders (the band members' special food, liquor, and other backstage requests), and manifests (required documents when you cross an international border).

Generally, the computer systems that are going on the road consist of several elements: a computer (with disc drive), a monitor, a printer, a few software programs (to make it all work), and a modem (to hook up the system to the telephone for "electronic communication" with the home office). The technology is usually selected, and later employed, by the tour managers and accountants, often with assistance from computer consultants like Entercom, based in Nevada City, Calif. The new systems replace typewriters, calculators, and haphazard phone conversations. Having a computer on the road enables the support staff to do their jobs with greater efficiency, speed, and professionalism.

Usually, generic software programs are purchased, and then adapted for music business needs. Most popular for riders, itineraries, and other texts is the word processing program WordStar, with the Perfect Writer also in use. The settlements are done with spreadsheets like Multiplan, VisiCalc, and SuperCalc. Dbase II is the most used database, while Lotus 1-2-3, VisiTrend/VisiPlot, and graphics programs by Microsoft are best for printing out floor plans, choreography, and props illustrations.



Toto's Steve Lukather (standing) looks on as tour manager Chris Littleton accesses a tour report on his IBM

Jay Hagerman (tour manager/accountant): "I don't know how anyone who ever uses a computer once ever lives without one after that"

As the music marketplace for business software becomes more defined, manufacturers may release software packages specifically designed to fulfill musicians' needs. Passport Designs, Inc. in Half Moon Bay, is already pursuing that tack. They've announced the Apple and IBM-compatible Pickers and Pickers-plus for band scheduling, logging of income/expenses, personal inventory and credits; Writers and Writers-plus for song lyrics, royalty income, expenses, and song classifications; and Tour, as well as Tour-plus for coverage of club and arena data/income/expenses, promotional income/expenses, contract information, fan mailing lists, and equipment inventory.

Testimonial From a Rocker

In August of 1982, Jay Hagerman was handling accounting for The Who's "Farewell Tour." His friend Dave Furano, of Entercom, met him in Philadelphia with an Osborne I computer, an external screen, an Epson printer, and software program SuperCalc. They stayed up all night and in one eight-hour crash course Furano taught Hagerman how to use the system. Within a week, he was comfortable with it, and had built in all his settlement and cash control sheets. When The Who tour arrived in Chicago, Hagerman contracted Rock & Roll Cases to implement his design for a custom road case on rollers, with compartments for the computer, printer, screen, and cables.

"After I got that, it was a piece of cake," Hagerman recalls. "The road crew would make sure the case was put into the production office of the venue every day when they loaded in. Every night I'd go down to the production office, the case would be there, and I'd set it up in five or ten minutes. It was very portable. I just needed a table and an electrical outlet. I'd turn it on, slip a disc in, and pull up whatever show I was doing. It had all my budgets. I'd do my settlement with the promoter's rep. The computer went on the equipment truck, with the sound and lighting. At the end of the show, when I was through, I'd pack it back up, roll it down the backstage area, and the production manager saw to it that it went on the trucks."

What differences did the computer make? "First of all, it made things a lot

faster," Hagerman says. "Normally, in settling shows you have a sheet with columns for expenses of the show. You have to put numbers in and add the columns up and verify them with the calculator and determine break points or percentages on behalf of the act. The computer does it instantaneously. By the time I got done going through the expenses with the promoter's accountant, I had my bottom line done. I didn't have to pull out a calculator. It was there."

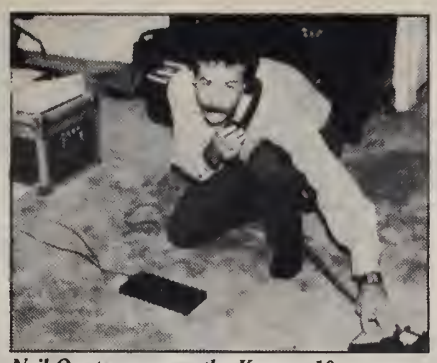
Furano also furnished Hagerman with a Lex acoustic modem and an electronic mailbox on The Source, enabling him to hook up and communicate electronically, via the computer and telephone. Every night, Hagerman opened up the mailbox and sent Premier, The Who's booking agency, a copy of the settlement. The next morning, it was there waiting for them. While the booking agency couldn't always reach the band and support crew by phone, they knew that each night Hagerman would check into the mailbox, so they routinely left communiques there, including changes with promoters, and deals.

Later in the tour, Furano furnished Hagerman with a Kaypro with a larger, 80-column built-in display screen and Multiplan, a spreadsheet Hagerman found even easier to use than SuperCalc. Hagerman was later to lend this system to his friend Mike McGinley for use on Tom Petty's 1983 tour. McGinley switched to an IBM-compatible Compaq for his current European/American Supertramp tour.

What of the musicians? What did they have to say about Hagerman's new tools of the trade? "The ones that saw the computer were real fascinated by it. They thought it was neat that something like that was out on the tour," he responds. "The Who carried around these big arcade video game machines. They had Space Invaders and two others. They set them up in the dressing rooms every day. Pete Townshend, Roger Daltrey, everyone played them a lot. When they saw my computer in the production office, they wanted to know, 'What kind of games can we play on this?' When I told them, 'No games on this machine,' they would say something like, 'Aw, shucks,' and go away. They weren't interested in knowing anything about something doing numbers ... although their manager certainly was," Hagerman recalls with a grin.

A Movement Emerges

Working with Dave Furano, Dan Cooper is based in Redondo Beach as Entercom's regional vice president. The company, which specializes in computer management consultation for the entertainment business, has outfitted Van Halen Productions, Nightmare Inc. (Journey), Premier Talent Agency, the LA Forum, F.M.I. (Irvine Meadows), and the Oakland Coliseum with systems. Last fall, Cooper toured with The Police, using an IBM-compatible Compaq computer, Epson printer, and PC Modem Plus (the internal Compaq modem) for their settlements and communications activities. He created a custom database of facility and city expenses, using Multiplan, Multimate and Lotus 1-2-3. The database included extensive advertising, limo, hotel, venue, and stagehand rate listing so bands can project their easiest and most profitable tour routing.



Neil Quateman uses the Kaypro 10 on tour with Stevie Nicks and Joe Walsh

Bruce Springsteen, The Who, Supertramp, The Police, Jackson Browne, Van Halen, Stevie Nicks and Journey are among the acts that have taken computers on the road with them

LA-based tour accountant Neil Quateman has toured with Bruce Springsteen, Fleetwood Mac, ELO, and The Eagles. He also worked on the US Festival. He and his Kaypro 10 went on the road with the Stevie Nicks/Joe Walsh tour this fall. A year and a half ago, Quateman first dipped his fingertips into high technology with an Apple and VisiCalc. Now, the Apple is the office machine at Beyond Management in North Hollywood. Quateman prefers the Multiplan spreadsheet, word processors WordStar and Perfect Writer, and database dBase II. He recently upgraded from the Kaypro II to the 10 MegaByte hard disk Kaypro 10 machine, which offers increased storage and graphics.

Quateman uses his system almost daily for income and expense projections. His worksheets show the effects of cancelling and adding show dates. Each evening, he evaluates the latest report on ticket sales, advertising, security, and hall rental before heading down to the show. Printouts are done with his Gemini 15 wide carriage dot matrix printer; a Novation modem and an electronic mailbox make for easy telecommunication with Beyond Management.

What do the musicians he works with say about it? He laughs. "They always ask, 'Who's winning? What game are you playing? Do you have any games I can play?' The feeling I get is that they see me using the computer and it seems to give them a feeling of confidence that I'm doing a good job. Their financial needs are translated more efficiently. When a production manager is trying to decide whether to use the buses or fly the tour members, I can do cost comparison more quickly.

"The road manager constantly comes up to me, asking for itineraries, letters, cost comparisons, pay schedules for sound and lighting suppliers. He passes out the itineraries to the band members. The musicians rarely come into contact with the work I do. They're not privy to the financial information except for their hotel incidentals or paychecks."

Meanwhile, back at the Fitzgerald Hartley Company, Chris Littleton prefers the IBM PC, with WordStar, Lotus 1-2-3, dBase II and Friday software, for tour projections, settlements, letters, riders, and contracts. Tubes synthesist Mike Cotten hauls around an Atari 800, an Okidata printer, and VisiCalc, WordStar, and Microsoft graphics programs for stage managing shows. Cotten prints out floor plans and set lists, in addition to costume, set, and prop projections and layouts. With this equipment he proved to David Bowie's stage manager that The Tubes would have enough room to do their show in front of Bowie's set. The Tubes' rehearsal time has decreased from two weeks to two days now that everyone has printout of song choreography and props.

The vistas for maximizing tour efficiency and professionalism are astounding. A company called Eastwind Computer Systems just opened its doors in LA this past summer to consult bands on using computers. Eastwind is creating a custom database file of venue specifications such as the height of the risers, the lighting setup, hall amperage, the size of the back door, and the number of dressing rooms per hall. An electronic listing of each city's hotels, rental cars, electronic repair houses, and restaurants is also in the works, as is a graphics program for equipment inventory. They advise bands on how to simplify box office procedures, keep better time management calendars for public relations events and interviews, and communicate more efficiently.

Forward-thinking tour managers are jumping on line right and left these days; the others will probably be left behind. Within the next three-to-five years, they may not even be able to recognize the touring business. □

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HARDWARE REVIEWS

IBM's PC AT

The AT, IBM's latest and most sophisticated entry into the PC market, is now arriving at retail dealers throughout California. It features Intell's 80286 processor chip and an internal RAM expandability to 3 megabytes, which give the AT considerably greater information-handling capability and storage capacity than its IBM-PC predecessors. The 80286's 16/24 bit structure allows the unit to operate at a speed better than 6 megahertz, which really increases your productivity when working those massive spreadsheets.

IBM's current offering comes in two configurations. The base model comes to you with 256K RAM and a 1.2 MB high-density floppy disk drive. The enhanced model features 512K RAM, one 1.2 MB floppy and a 20MB hard drive. Both systems operate under the new PC DOS version 3.0, and are equipped with eight expansion slots to give the user a good deal of configurable expandability.

Among the many options are the Intel 80287 microprocessor, specially designed to perform mathematical calculations quickly; monochrome or full-color monitors; and monochrome or 8-color dot-matrix printers for high-quality graphics.

The new keyboard represents a considerable improvement over previous IBM-PC models: it features a key lock security system to prevent unauthorized access; the "Enter" and "Shift" keys have been enlarged for easier use; LED indicators have been added for "Num Lock," "Scroll Lock," and "Caps Lock" keys. The entire keyboard has been designed for a more typewriter-like arrangement.

Either the Basic or Enhanced model can be expanded by adding another 1.2 MB or 360K floppy disk drive and a 20 MB hard drive. I recommend the 360K floppy in order to give you the maximum in existing PC software compatibility. Much of the existing software for the other IBM-PC's will also run on the AT.

The machine comes with several manuals and also includes a diskette called "Exploring the IBM Personal Computer AT," designed to introduce new users to the system and familiarize them with its functions. However, one word of warning: it took the dealer where I saw the system three working days to set up the AT for the first time and make it operable.

— Kim Nelson

	Base model	Enhanced model
Microprocessor	16/24-bit Intel 80286	16/24-bit Intel 80286
Permanent memory (ROM)	64KB	64KB
User memory (RAM)	256KB standard; expandable to 3MB	512KB standard; expandable to 3MB
Auxiliary storage	1.2MB standard (one 1.2MB diskette drive); expandable to 41.2MB	21.2MB standard (one 1.2MB diskette drive, one 20MB fixed disk drive); expandable to 41.2MB
System expansion	8 expansion slots; one occupied by standard Fixed Disk Drive / Diskette Drive Adapter	8 expansion slots; two occupied by standard Fixed Disk Drive/ Diskette Drive Adapter and Serial/Parallel Adapter
Operating system	IBM Disk Operating System (DOS) 3.00	IBM Disk Operating System (DOS) 3.00

HARDWARE REVIEWS

MACINTOSH

Apple Computer, Inc.

Since its introduction six months ago, Apple's Macintosh computer has sold over 80,000 units. Today it is still selling as fast as it can be manufactured. What lies behind this early success? Certainly marketing strategy — television commercials and five-page color ads — has helped. But there are at least two other major factors — price and technological innovation.

What you get for your $2500 certainly doesn't look like much — a small beige plastic box with a built-in monitor, a separate keyboard and a mouse. But packed into that little plastic box is the most powerful microprocessor available in a microcomputer today, the Motorola 68000, plus 128 kilobytes of random access memory, one of the new 3½ inch floppy disk drives, and some sophisticated software.

The most basic software on any computer is the operating system. The Macintosh operating system is called "Finder" and is controlled by the mouse rather than by commands typed at the keyboard. All of the resources available to the operator are displayed on the screen in the form of small pictures (icons) with names under them. You move the mouse on a flat surface so that an arrow on the screen points to the picture of the desired resource, then press the button on the mouse and Finder does the rest. This may seem strange at first, but after you have done it a few times it becomes automatic, and saves a lot of typing.

In addition to Finder, every Macintosh comes with two pieces of software called Macwrite and Macpaint. Macwrite is a word processor, different from the earlier word processors in several respects. First, you use the mouse instead of special keys to select functions. Second, you can use different type styles and sizes within one document (good for emphasis). Third, you can integrate graphic images created with Macpaint into your Macwrite text. These last two innovations are possible because the Macintosh uses a dot matrix printer.

Macpaint, a graphics program, is far beyond anything available previously. You have to see it to believe it! You can draw freehand or build boxes and circles. You can paint with patterns. You can add text in several different fonts and sizes. You can take part of a picture and duplicate it once or many times on the page. You can stretch or compress things. And anything you can create on the screen, you can print on paper.

So far so good, but what about the machine's limitations? First, it only has 128 kilobytes of RAM, which may seem like plenty, but fancy programs like Finder, Macwrite and Macpaint use up lots of memory. Macwrite documents can only be about seven pages long (even less if graphic images are included in the text). Apple plans to improve on this by introducing a 512 kilobyte version of Macintosh late in 1984.

Second, it only has one floppy disk drive. To copy a file from one disk to another involves many disk changes (the copy buffer is small). Apple offers an external disk drive for Macintosh but you may have trouble finding a dealer who can get one for you.

Third, there isn't much software for it yet. The only programming language available now is Microsoft Basic. You can't even get an assembler for the Macintosh using the Lisa computer. However, Apple is introducing "Macbasic" and "Macpascal" this summer, and soon everybody will be announcing packages of all descriptions for the Macintosh.

Fourth, it doesn't have color. Apple may offer a color version someday, but right now the high resolution color monitor required would double the cost of the machine.

Apple's offering is an extremely powerful machine which avoids the pitfalls of many competitors in the same class. It has an excellent price and is still "user friendly" enough to be of interest to the novice. The current limitations of the machine may tend to make it impractical for some usages and I would definitely not promote purchasing a computer based on future promises. However, judging from its unique graphics and the space devoted to it recently in trade journals, Macintosh has created a great deal of interest and excitement. It seems destined to become an industry mainstay.

— Walter Grams

EDUMATE LIGHT PEN

Futurehouse, Inc.

For Atari, Commodore 64 and VIC 20

The Edumate Light Pen is a useful and entertaining piece of hardware that can be a welcome addition to anyone's computer. It works by intercepting the light beam produced by the scanning of your TV or monitor screen at the spot where the pen is pointed, causing an electrical impulse to be transmitted to the computer. This pulse signals the computer to store the two register values representing the horizontal and vertical position of the pen, so they can be operated on by software. The pen does not have to be directly against the screen to operate, although this makes positioning more accurate. Depending on the type and adjustment of your display, the pen will work at a range from contact to the length of the cord away. I have both a color TV and a monochrome monitor connected to my Commodore 64 and found that the pen was operational at a much greater range when used with the TV.

The Edumate pen comes with four programs to demonstrate its capabilities.

Draw Routine allows you to use your computer as an electronic sketchpad, producing hi-res drawings using the pen as a "paintbrush." Since the Edumate does not have a switch on the pen, it is controlled by either the [f7] or left [SHIFT] key. Being right-handed, I found the left keys easier to use. 16 colors are selected by using the color keys directly. [f5] or [A] will erase a line, while [CLR/HOME] will erase the screen. It's easy and fun! There is no capability for saving your drawing, which seems a serious oversight

in the programming; however, it can be down loaded by a standard screen dump program.

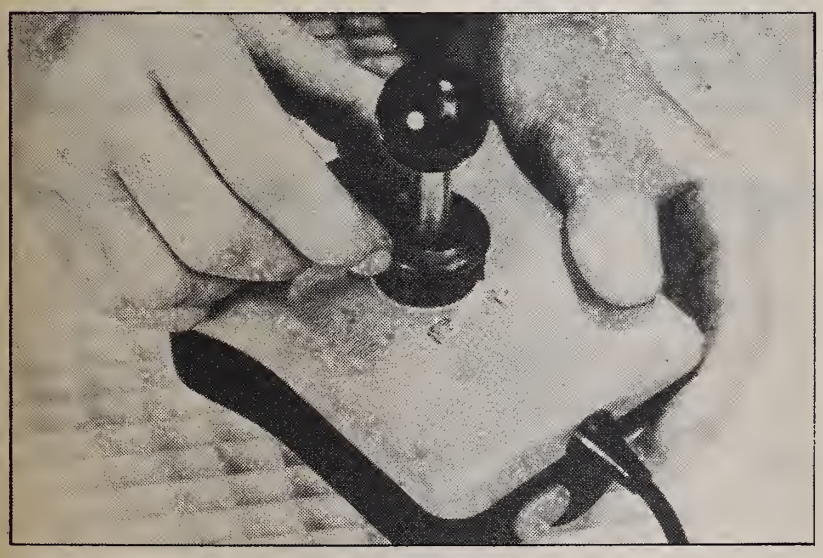
Disk Utility is a simple DOS routine using the pen to select and control disk-related activities. You can "autorun" basic programs from the disk but cannot load or run ML programs.

3D Tic Tac Toe is the 4x4x4 version, with one play level displayed at a time. You select your move with the light pen, then confirm or cancel it to allow the computer's turn. You can also view any of the four levels when desired. A 2-player option would make the game more interesting for enjoyable play.

Pen Music gives you a display of dots representing a complete 12-note scale in eight separate octaves, plus icons for waveforms and a decay control for note duration. Now you can compose and play tunes by touching the Edumate to the desired dot. But again, there is no capability for replaying one of your tunes, or saving it.

Despite a few drawbacks, the Edumate Light Pen seems an excellent product. The instrument itself appears sturdy and well-made. The software, though limited, gives a good demonstration of the capabilities of the light pen and suggests some immediate programming ideas for the user. Futurehouse also has additional graphics and educational software available for use with the pen, such as Little Red Riding Hood, Alphabet Construction Set, Animal Crackers, and Computer Crayons.

— Ed Shurtleff



PROSTICK II

Newport Controls/Division of Cal-Tran Corporation
For Atari and TI-99

The Prostick II is a joystick compatible with Atari and TI-99 home computers. To evaluate it, we assembled an informal panel of judges consisting of two serious enthusiasts (one eight-year old and one left-handed male adult) and one female neophyte. We felt this group represented a probable spectrum of consumers and was qualified to test the joystick's comfort, ease of play, and potential for enhancing game performance.

The Prostick II is easy to hold, lightweight and a cool blue color. The firing technique can be activated by the left or right index fingers. The switchable gateplate can be set in the 4- or 8-way position. The 4-way setting eliminates diagonal directions so the player moves only horizontally or vertically. This can be extremely helpful for inexperienced players in maze games.

Our panel found the Prostick II a helpful addition to their hardware and well worth its $24.95 price. We were also pleased to see that it carries a FIVE year guarantee.

— Pat Hamilton

PC-5000

Sharp Electronics Corporation

The Sharp portable computer is truly a portable, not a "draggable." Battery operated, it can include a built-in printer, detachable modem, system and basic ROM, and a 128Kb non volatile, removable, cartridge system which emulates a disk drive system. The RAM memory is 128Kb standard expandable to 256K.

The computer has a full-size, complete keyboard with an 80 by 8 LCD display for text and graphics. An RS-232 serial port may be connected to an external printer, and another serial port controls a cassette recorder. Still another port connects to a dual 5 1/4 inch double sided floppy disk drive system.

The computer uses an 8088 microprocessor and runs under the MS DOS 2.0 operating system. Disk data can be transferred back and forth from an IBM PC computer operating under PC DOS 2.0.

Software bundled with the computer includes the DOS, a system control utility, a word processor, and a communications program. A spread sheet is available and several more IBM PC programs will be available soon. Most programs written in Basic or GW Basic will run.

The computer includes a clock calendar which runs on a small cell, charged from the main system battery. With the utility program, the clock can be used as an alarm, or as a trigger to start other software. For example, the communications package may be triggered to place a telephone call to a bulletin board, log on, send or receive a file, and log off. All communications text is saved in a RAM memory log. This is convenient when it is determined after a call that a piece of the text is needed. Sections may be marked and saved to disk files on bubble or floppy disk.

The modem unit stores 10 telephone numbers for auto dial, contains a speaker and microphone for use as a telephone, includes a 10-key pad which works with the DOS to be used as a remote data input device, and is stored in the case of the computer.

Since delicate disk drives need not be included in the basic unit, the computer is rugged and lightweight for travel. The complete computer system, which weighs less than 15 pounds, will fit in a standard brief case, and will operate on your lap anywhere without external connections except for telephone line communication. Truly a portable, it is ideal for the commuter-traveler.

— Val Fish

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BASIC WITH KEYED FILES

Applications BASIC is a business BASIC Level 3 interpreter with many features not found in other languages. Available for MS-DOS and CPIM-80. SGI, P.O. Box 2718, Newport Beach, CA 92663.

COM64 SOFTWARE FOR SALE

Archon, EA-Pinball, Combat Lead, Blue Max — $25. Exodus 3 — $39. Infocom-Enchant, Sourcer, Infid, Planet — $30. Temple of Apshai, Aztec, Hard Hat Mack, Load Runner, Blade Blkp — $20. (714) 871-8795. Walter.

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Includes complete documentation. Cartridges: Q-Bert, Donkey Kong, Pac-Man — $20. Disk: Bank Street Writer — $30. Ultima II — $25. Zork II, Zork III (with maps and clues) — $20. Rhymes & Riddles, Blade of Blackpoole, Ulysses and the Golden Fleece — $15. Cassettes: Conversational Spanish — $25.00. Empire of the Overmind, Sublogic Pinball — $12.50. (714) 947-3131, ask for Mike.

USER GROUPS

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MicroTimes offers a free listing service for user groups. See page 18 for more information.

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ARCADE REVIEWS

STAR WARS

Released: 1983
Produced by: Atari
Cost per play: 50¢

Star Wars is one of Atari's newer arcade video games. As the title indicates, the game draws its name from the first movie of the series. The player is cast as the young Jedi Knight, Luke Skywalker, whose mission is to fly an X-wing fighter in an attack on the Imperial Death Star. At one point, Luke might be involved in a dogfight with Imperial Tie Fighters high over the surface of the Death Star. Yet another time, a strafing mission on the surface flak towers of the Death Star might be in order. And yes, there is a mission to fly down the "Trench of Death" to launch a proton torpedo into an exhaust port to destroy the Death Star.

The player has three "lives" and is given seven "shields" to deflect the incoming fire of the Imperial forces. The game controls consist of a two-handed control column with both triggers and firing buttons. The multicolored vector graphics (stick figures as in Atari's *Battle Zone)* are very good. This is an excellent game with a great deal of identification with its original story. Well worth the price. May the force be with you. . . .

—John D. Gresham

RED BARON

Released: 1980
Produced by: Atari
Cost per play: 25¢

First released in 1980, *Red Baron* is a good example of a game design outliving the technology it was designed around. The reason for this is simple: Take a romantic subject (WWI aerial combat), put the player in the place of an attractive character (the Red Baron), give that player a good, solid game design, and you have a winner.

Flying a Fokker triplane, the player has the option of trying his or her hand at dogfighting with other aircraft, "balloon bursting," and strafing ground targets. The other targets can shoot at you, though, and you will need the three "lives" that each quarter buys you. The key to this game is to keep moving. Don't let any of the other planes get behind you or you *will* die!

The visual display presents a forward-looking view out the front of the aircraft; the monochrome graphics are vector based and very attractive. For the price, this game is a great value and quite fun.

—John D. Gresham

XEVIOUS

Released: 1983
Produced by: Atari
Cost per play: 50¢

This game represents the new generation of video arcade games with extremely high resolution graphics, which are much more challenging than the simple "shoot and bomb" games that have dominated the arcades since the introduction of Atari's classic *Asteroids*. Here we have the player flying over changing terrain, trying to bomb various ground sites without being knocked down by defending ships, systems, and game "goodies" that are constantly being thrown at him (or her).

While the graphics are quite nice and the game itself is challenging, I have to wonder if it is enough of an improvement over existing designs to warrant a hefty 50¢ per play price tag. It goes without saying that your game playing dollar won't go as far as it used to, but it would be nice to get twice as much from these new games. Compared to the new generation of games designed around the laser videodisc, purely computer-generated graphic games just won't stand up very well. Don't get me wrong. I enjoyed this game. Just not 50¢ worth.

—John D. Gresham

NFL FOOTBALL

Released: 1983
Produced by: Midway
Cost per play: 50¢

NFL Football is yet another example of how an inventive company can make use of the laser disc medium. Instead of using the videodisc as a storage source for animated segments (as in *Dragons Lair)* or as a playing area (like *Mach-3)*, *NFL Football* uses it to hold a series of "canned" live action plays from actual football games. A number of possible outcomes to a player's actions exist when a videodisc is used to store different plays.

The game may be played with two players, or one against the computer. After the money is deposited, a scoreboard clock and a "shotclock" start. Players have 30 seconds to select a play (offense or defense) from a menu on the screen. Once they've selected their plays, the computer compares their inputs (sideline pass versus a prevent defense, for example), and decides an outcome. It then commands the videodisc to display the live action segment that matches the result.

The particular game reviewed pits the San Diego Chargers against the Los Angeles Raiders. The offensive player starts on the home 40-yard line and must move the ball to score. Should the offensive player be stopped, the teams switch sides. Once the scoreboard clock runs down, additional money may be deposited for extra "quarters" of playing time.

If you've ever said that you could coach better than "that idiot" on the tube, this is your chance. The only problem is that you can't take it home with you. But until someone develops a home version, this one is great fun.

—John D. Gresham

SPY HUNTER

Released: 1983
Produced by: Bally-Midway
Cost per play: 25¢

Spy Hunter is an interesting change from the normal "drive and crash" arcade game — its object is to ram, crash, bomb and machine gun your opponents' cars off the road. Frustrated I-5 commuters should find this a pleasurable diversion. The player finds himself at the controls of what seems to be a normal arcade driving game: steering wheel, accelerator pedals, and gearshift seem fairly normal — that is, until you notice the machine gun triggers on the steering wheel. This game puts you in the seat of 007's Aston-Martin or Lotus for a rousing drive against the bad guys of the freeways.

A cargo van lets you off on the side of the road. You must quickly get up speed to start your journey down the "Freeway of Death." Before you know it, enemy cars, trucks, and motorcycles are attempting to ram, bomb, and machine gun you into oblivion. And, of course, your own mistakes can also cause you to crash and burn.

This little gem is a real pleasure. Give it a try.

—John D. Gresham

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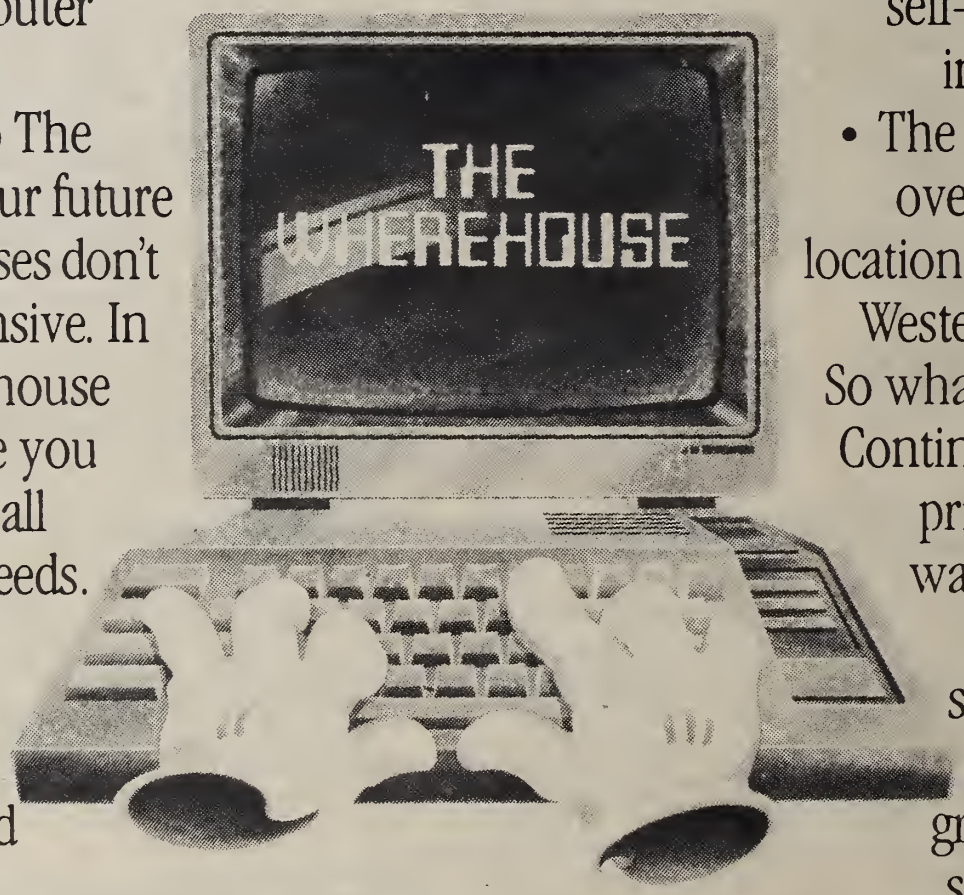

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